

BS-MS ‘major’ in EES – Frequently Asked Questions

The BS-MS programme in EES has just commenced and is still evolving under the guidance of a National Advisory Committee. Thus, while the responses to this FAQ should give you a fairly good idea of what to expect from BS-MS in EES at IISERB, please be advised that things will change for the better in the days to come!

1. What are the requirements to obtain a BS-MS degree in EES?

All our BS-MS students choose a ‘major’ at the beginning the third year (5th semester) of their programme. The detailed eligibility criteria are accessible online via https://www.iiserb.ac.in/academic/PDF/manual_bsms.pdf. Typically, students fulfilling the mandatory course and CPI requirements are allotted a ‘major’ of their choice.

Further, if a student feels that he/she has chosen a major that is 'wrong' for him/her, they can change majors up to the end of their 6th semester (of course with additional course load) and move to a major that excites and interests them. Thus, exercising a choice of major at the beginning of the 5th semester does not really tie down the student, for life.

2. What is the list of courses to ‘major’ in EES?

All students must credit the core courses offered during the first two years of the BS-MS programmes, namely, Introduction to Earth Sciences, Introduction to Environmental Sciences, and Earth and Environmental Resources.

The objective of the courses offered in the first two years is to introduce the student to different components of the geosphere, biosphere, atmosphere, and hydrosphere and help them appreciate the interactions between these components. After completing these core courses, interested students may choose to ‘major’ in EES by crediting the following tentative list of professional courses:

Third year courses:

Core Earth Science courses such as: Mineralogy, Solid Earth Geophysics, Igneous and Metamorphic Petrology, Sedimentology and Principles of Stratigraphy, Remote sensing and GIS and relevant labs and field work.

Core Environmental Science courses such as: Environmental Chemistry, Atmospheric Sciences, Oceanography, and relevant labs

Open Electives I and II

Fourth year courses:

Core Earth Science courses such as Earth Surface Processes, Structural Geology, Geochemistry, Hydrological Systems, and relevant field work and labs

Core Environmental Science courses such Global Climate Change, System Dynamics, Environmental Methods and relevant field work/labs

Departmental Electives I, II, III, and IV

Open Electives - III and IV

Fifth Year Courses

Departmental Elective –V

Open Elective- V

Project work - both semesters

Electives

Students use the ‘Open Electives’ to obtain credits in courses from a Department other than their major, if they choose to earn a ‘minor’, in addition to the ‘major’ for their BS-MS. The Department Electives are used by students to specialize in the Earth or Environmental Sciences stream. The representative and tentative list of course offerings to fulfil elective requirements are as follows:

Earth Science Basket - Natural Hazards, Exploration Geophysics, Petroleum Geosciences, Isotope Geochemistry, Economic Geology, and Ground Water.

Environmental Science Basket - Ecology and Conservation Biology, Waste Water Management, Air Pollution Control, Soil Pollution Control, and Science of Sustainability.

EES Basket (may be used by students to fulfil their open elective requirements if they choose not to minor in another discipline) - Biogeochemistry, Measurements and Analyses Methods in EES, Computational Methods in EES, Research Methods and technical Writing, Energy and Resources, and Environmental Science and Policy.

3. Is there any tie-up with NUS or other Universities in U.S where students can do Internship or additional projects/studies?

No. Not currently. However, the Department is closely associated with CREST (<https://www.iiserb.ac.in/PDF/crest.pdf>) which in turn will be associated with organizations abroad. Thus, there is opportunity for international research exposure/experience. However this will be restricted to summer and winter vacations.

In addition to the interdepartmental Center for Excellence, CREST, the faculty members collaborate with researchers from several prominent Institutions abroad. Possibility for student exchange under different collaborative programs will be explored in the near future.

In addition to all of the above, EES students are encouraged to present their work in the form of a lecture or poster in national and international conferences. These conferences provide a networking opportunity and enable students to interact with their peers, faculty members, and researchers working in allied areas. It is expected that these interactions will fuel new collaborations.

4. IISER Pune has Earth and Climate Sciences and IISER Calcutta has Earth Sciences. How different is EES from the other two streams?

The objectives and vision of the programmes offered by IISER Pune and Kolkata may be obtained from their Institute web-sites or by getting in touch with the concerned Departments.

The BS-MS ‘major’ in EES at IISERB is unique compared to programmes typically offered by other academic Institutions. This programme at IISER Bhopal has been designed in order to develop an understanding of the different components of the Earth system and their mutual interactions. These interactions are then placed in the context of understanding and mitigating environmental issues. In order to achieve these objectives a suitable balance between courses that encompass both Earth Sciences and Environmental Sciences are offered. From the 4th year (7th semester) onwards, students are advised to choose one of the streams for specialization, Earth Sciences or Environmental Sciences, and credit the Department Electives accordingly. If a student, however, consciously desires to take courses across the two streams, he/she will be enabled to do so.

5. Where does a ‘major’ in EES work?

All kinds of exciting places!

Earth and Environmental scientists work as explorers for *new mineral and hydrocarbon (oil) resources*, consult on *engineering and environmental problems*, and conduct research for *unravelling Earth's history* through clues left behind in rocks. It is quite common for a geologist to have travelled to a variety of environments during the course of his/her career such as *glaciers, river valleys, deserts, mountains and coastal areas* to name just a few!

EES jobs can be divided into field intensive work (e.g. mining companies, oil companies, groundwater studies); laboratory intensive work and office jobs (e.g. interpretation and modelling related to ore and mineral resources or coal beds, environmental monitoring, remote sensing and GIS related jobs)

6. What are some of the companies where students may apply for jobs after majoring in EES?

Oil companies (Shell, Schlumberger, Baker Hughes, Cairn India, Oil India Ltd., and others)
Mining companies (Vedanta Resources, National Mineral Development Corporation, Hindustan Zinc Ltd., Hindustan Copper Ltd. and others)
Gemological Industry (International Gemmological Institute, De Beers, EGL and others)
Other Government organizations (GSI, ONGC, BARC, AMD, NEERI, CPCB and others)

7. What will be the employability of a student after graduating from the Department of EES, IISER Bhopal?

Students may apply for jobs in the companies listed above. In addition the Institute and the Department will participate actively in trying to get various companies to recruit students during their final year as a BS-MS major in EES. The syllabus for students majoring in EES is being built keeping in mind the requirement of students who wish to appear for competitive exams such as GSI, ONGC, and AMD.

Further, students interested in pursuing research will have the advantage being prepared for an inter-disciplinary approach to research compared to the more traditional Earth or Environmental Sciences only research. Also, students conduct two semesters of project work, during which they are involved closely with the research of a particular faculty and group. This exposure of research is invaluable to students who wish to continue in the field of research and academia.

8. Will students majoring in EES have to write a project report?

Yes. In the last two semesters, all BS-MS students of IISER Bhopal (irrespective of their Department) are involved in research work mentored by a faculty of their Department. This research work must be submitted as a project report for evaluation.

9. What are the Department's faculty currently working on?

Please view the [faculty profiles](http://www.iiserb.ac.in/ees) for more information about each faculty member's current research interests www.iiserb.ac.in/ees

10. In the past, all students at IISERB have credited some EES core courses during their BS-MS programme and some of them have even earned a 'minor' in EES. Where are these students employed and how were these courses useful to them, on the job?

The Department is in the process of seeking detailed feedback from its alumni on the usefulness of its courses.

In general, all EES courses have been very well received in the past. For a glimpse of the 'usefulness' of our courses as articulated by a student from the very first batch of the BS-MS programme at IISERB, please see <https://iiseralumnistories.wordpress.com/2015/07/17/iiser-b-alumnus-rising-to-iaf-motto-touch-the-sky-with-glory/>